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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,393	04/01/2004	Virinder Mohan Batra	CHA920040003US1	9578

23550 7590 07/20/2007  
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EXAMINER
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SMITH, CAROLYN L

ART UNIT	PAPER NUMBER
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1631

MAIL DATE	DELIVERY MODE
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07/20/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/816,393	<b>Applicant(s)</b> BATRA ET AL.	
	<b>Examiner</b> Carolyn L. Smith	<b>Art Unit</b> 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission, filed 5/25/07, has been entered.

Amended claims 1-8, 10, 14, and 17 and cancelled claim 9, filed 5/25/07, are acknowledged.

Claims herein under examination are 1-8 and 10-20.

#### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-7 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-7 may be interpreted to be either a process or an apparatus. Therefore, these claims are not statutory as they embrace or overlap two different statutory classes of invention (MPEP 2173.05(p)). As stated above, a patent may be obtained for a process, machine, article of manufacture, OR composition of matter.

Claims 1-7 are directed to a "computer-implemented security system" which comprises various systems. The system is not limited to any hardware elements or combination of software

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and hardware elements. Therefore, one interpretation is that this system is not a physical article of manufacture. This system can be interpreted to be a program. It is noted that a computer program (i.e. software in the absence of any physical element to render the software functional) is not statutory (MPEP 2106). As the “system” may encompass only software, the claims are not statutory.

***Claims Rejected Under 35 U.S.C. § 112, Second Paragraph***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

Claims 1-7 recite “a system for” limitations that are vague and indefinite. If these claims are to be interpreted as an apparatus, it is unclear what structural limitations are intended for the system as these are only “intended use” limitations. Clarification of this issue via clearer claim wording is requested. This rejection is maintained.

Applicants argue they have amended claims 1-7 to recite a “computer-implemented” security system to provide necessary clarification of the structural limitations for the system. This statement is found unpersuasive as it is still unclear what structural limitations are intended for the systems listed in the body of the claim 1.

***Claim Rejections – 35 USC §102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-8, 10-12, 14, 15, 17, 18, and 20 are rejected under 35 USC 102(b) as being anticipated by Rungsarityotin et al. (Pure Appl. Chem., 2002, Vol. 74, No. 6, pages 891-897) with additional support from the Merriam-Webster online dictionary (“encrypt”, “encode”, “encipher”, and “cipher”).

The Merriam Webster online dictionary defines “encrypt” as “encipher or encode”. The term “encode” means “to specify the genetic code for” or “converting a message into code” (see Merriam-Webster online dictionary). The term “encipher” means to convert into cipher (“a combination of symbolic letters” or “a message in code”) (see Merriam-Webster online dictionary). These definitions are not being used as prior art, but rather to support the definitions of these terms.

Rungsarityotin et al. disclose a grid-enabling software technology with a grid security system and method featuring a security infrastructure to transform bioinformatics genomic data from different sites to a standard format (page 892, last three paragraphs and Figure 1) including visualizing, analyzing, and transporting XML-based DNA data (abstract) which represents a computer-implemented security system for securing an electronic version of a nucleotide chain,

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as stated in the preamble of claims 1 and 8. Rungsarityotin et al. disclose exchanging information on a particular gene or coding regions (abstract), integrating a physical map of BAC sequence from a rice chromosome (Figure 2), using BAC-end sequences and BAC fingerprint contigs and linking critical regions of interest onto a sequence-ready map (page 894, first paragraph) which represents identifying coding and non-coding regions in the nucleotide chain, as stated in instant claims 1, 8, 14, and 17. Rungsarityotin et al. disclose using expressed sequence tags (ESTs) treated as genes and marker names (i.e. AP002882 and RZ69) (in Figure 2 and page 894, first paragraph) along the sequence with non-coding regions merely listed as a line (Figure 2) and providing security over a network (page 892, last three paragraphs; abstract; and Figure 1) which represents selectively encrypting only the coding regions identified in the nucleotide chain to provide security over a network, as stated in instant claims 1, 8, 14, and 17. Rungsarityotin et al. disclose visualizing DNA data, communication between several sources of data and XML-based DNA transported for further representation (abstract; Figures 1, 2, 4) including textual or graphical output (Figure 2 caption) which encompasses the outputting, as stated in instant claims 1, 2, 8, 14, and 17. Rungsarityotin et al. disclose transporting these XML-based DNA data and using a Web browser and Web-based viewer (abstract and Figure 2), as stated in instant claims 2-4, 8, 11, 12, 15, and 18. Rungsarityotin et al. disclose grid technologies and recording DNA sequencing data in computerized databases to facilitate analysis, storage and retrieval and creating a database containing the encrypted and unencrypted non-coding regions as discussed above (page 892, fourth paragraph; page 893, last two paragraphs to page 894, first paragraph; and Figure 2) which represents receiving, as stated in instant claims 6, 7, 8. Rungsarityotin et al. disclose visualizing DNA (abstract), transforming

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data (page 892, third and fifth paragraph), and choosing between textual and graphical output and transforming XML documents to scalable vector graphics (Figure 2 caption) which represents decrypting and regenerating, as stated in instant claims 6, 8, and 17. Rungsarityotin et al. disclose a system involving converting algorithms to convertible code such as Java for data acquisition, translation, and distributing computational tasks (page 896, second paragraph).

Rungsarityotin et al. disclose using the grid data structure and query engine to respond to specific bioinformatics questions including a database for nucleotide chain queries (page 894, last paragraph to page 896, first paragraph), as stated in instant claims 7, 10, and 20. Rungsarityotin et al. disclose computers (Figure 1), Internet2 (abstract), data structures, software technologies, programs, storage systems, files, and databases (page 892, last four paragraphs and page 893, last paragraph), which represents a program product as stated in instant claims 14, 15, 17, 18, and 20.

Thus, Rungsarityotin et al. anticipate claims 1-4, 6-8, 10-12, 14, 15, 17, 18, and 20.

Applicants argue that Rungsarityotin et al. do not disclose, among other features, "a system for selectively encrypting only the coding regions identified in the nucleotide chain." In the Office Action, it is asserted that Rungsarityotin teaches a security system for securing an electronic version of a nucleotide chain, including visualizing, analyzing, and transporting XML-based DNA data (Office Action, p. 7), which uses expressed sequence tags (ESTs) treated as genes and marker names along the sequence with non-coding regions merely listed as a line, and that this anticipates the invention as claimed herein (Office Action, p. 7-8. Applicants argue that "encryption" refers to the process of using an algorithm, or cipher, to apply a series of well-defined steps to plaintext information, ultimately securing or obfuscating a message. The

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operation of a cipher generally depends on a piece of auxiliary information, called a key, also referred to as a cryptovvariable. The encryption procedure varies depending on the key, which changes the algorithm's detailed operations. This statement is found unpersuasive as the originally filed application does not provide a clear and concise definition of "encrypting" which has therefore been interpreted in a broad and reasonable manner. Applicants argue that the use of a cipher to encrypt genomic data is not present in Rungsarityotin et al. This statement is found unpersuasive as Jorgensen et al. were relied on for the teaching of utilizing cipher block chain encrypting in the 35 USC 103 rejection. Furthermore, the originally filed application does not provide a clear and concise definition of "cipher" which has therefore been interpreted in a broad and reasonable manner. Applicants again argue about Rungsarityotin et al. not disclosing "encryption" which has already been found unpersuasive as addressed above. Applicants argue that Rungsarityotin et al. do not teach encryption on page 894, first paragraph, and Figure 2 because this in no way implicates the use of an encryption algorithm. This statement is found unpersuasive as the instant claims fail to recite any algorithm. Applicants summarize Rungsarityotin et al. Applicants incorporate the same arguments for claims 8 and 14 as were provided for claim 1. These arguments are already deemed unpersuasive for the reasons given above. Applicants additionally submit that Rungsarityotin et al. do not teach a program product including, inter alia, the feature of a "selectively decrypting only the coding regions identified in the encoded nucleotide chain; and means for reassembling the coding and non-coding regions to generate a decoded nucleotide chain." (Claim 17.) This statement is found unpersuasive as Rungsarityotin et al. disclose visualizing DNA (abstract), transforming data (page 892, third and fifth paragraph), and choosing between textual and graphical output and transforming XML

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documents to scalable vector graphics (Figure 2 caption) which represents decrypting and regenerating/reassembling. In addition, Rungsarityotin et al. disclose data structures, software technologies, programs, storage systems, files, and databases (page 892, last four paragraphs and page 893, last paragraph) which represents a program product. Applicants argue that the resulting map in Rungsarityotin et al.'s Figure 2 does not represent a decoded nucleotide chain, but rather separate, unlinked, independent sections of genomic data. This statement is found unpersuasive as the limitation "the decoded nucleotide chain" recited in the instant claims does not specify how long it must be or if it must include the entire nucleotide sequence. The contig line in Figure 2 represents a chain as does the marker names (chains of nucleotides). Applicants argue because Figure 2 of Rungsarityotin et al. has non-coding regions represented by a line, it is not possible to reassemble the coding and non-coding region to generate a decoded nucleotide chain. This statement is found unpersuasive as "a decoded nucleotide chain" does not necessarily require that the entire chain must be decoded, so that one section of decoded chain will suffice.

Applicants argue that the term "encryption" should not be interpreted in a broad manner, because the term speaks for itself. This statement is found unpersuasive as no clear and concise definition was provided by Applicants which has led to the broad and reasonable interpretation. Applicants argue that interpreting "encryption" to include merely transforming data is beyond the scope of any reasonable interpretation. This statement is found unpersuasive as the Merriam Webster online dictionary defines "encrypt" as "encipher or encode". The term "encode" can simply mean "to specify the genetic code for" or "converting a message into code" (see

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Merriam-Webster online dictionary). The term “encipher” means to convert into cipher (“a combination of symbolic letters” or “a message in code”) (see Merriam-Webster online dictionary). Applicants argue that Rungsarityotin et al. do not teach making data unreadable or secure or providing security over a network. In response to applicant's argument that Rungsarityotin et al. do not teach making data unreadable or secure or providing security over a network, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In addition, Rungsarityotin et al. disclose a grid security system (page 892, last paragraph) which represents securing an electronic version and a network, as stated in instant claim 1. Regarding making data unreadable, it is noted that the instant claims do not recite this limitation. Applicants submit that the arguments provided above also apply to the dependent instant claims. The arguments above were already found unpersuasive and are thus unpersuasive for the dependent instant claims as well.

Applicants' arguments are deemed unpersuasive for the reasons given above.

### ***Claim Rejections – 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. (e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8 and 10-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rungarsityotin et al. (Pure Appl. Chem., 2002, Vol. 74, No. 6, pages 891-897) with additional support from the Merriam-Webster online dictionary (“encrypt”, “encode”, “encipher”, and “cipher”) in view of Jorgensen et al. (US 2004/0221163 A1).

This rejection is maintained and reiterated for reasons of record.

The Merriam Webster online dictionary defines “encrypt” as “encipher or encode”. The term “encode” means “to specify the genetic code for” or “converting a message into code” (see Merriam-Webster online dictionary). The term “encipher” means to convert into cipher (“a combination of symbolic letters” or “a message in code”) (see Merriam-Webster online dictionary). These definitions are not being used as prior art, but rather to support the definitions of these terms.

Rungarsityotin et al. describe the limitations of claims 1-4, 6-8, 10-12, 14, 15, 17, 18, and 20, as stated above. Rungarsityotin et al. do not describe using cipher block chain encrypting.

Jorgensen et al. describe methods, systems, and program products on readable media for securing transmitting data using an encryption scheme (abstract and 0085) including cipher block

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chaining (0033), as stated in instant claims 5, 13, 16, and 19. Jorgensen et al. describe algorithms for encryption and decryption (0069).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method, system, and program products of Rungsarityotin et al. by use of cipher block chaining as described by Jorgensen et al. where the motivation would have been to improve the security, stability, efficiency, and flexibility of secure data transmission and application sharing over a network, as taught by Jorgensen et al. (0018 and 0019).

Thus, Rungsarityotin et al. in view of Jorgensen et al. make obvious the instant invention.

Applicants argue that the claims are allowable based on the arguments set forth in the 35 USC 102 rejection above. This statement is found unpersuasive as the above-mentioned arguments were deemed unpersuasive for the reasons given above.

### ***Conclusion***

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center. The faxing of such papers must conform to the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR §1.6(d)). The Central Fax Center number for official correspondence is (571) 273-8300.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carolyn Smith, whose telephone number is (571) 272-0721. The examiner can normally be reached Monday through Thursday from 8 A.M. to 6:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla, can be reached on (571) 272-0735.

July 12, 2007

/Carolyn Smith/  
Primary Examiner  
AU 1631